

IN THE DRAWINGS:

Figures 1, 5, 6, 14, 15, 19, 22, 23, and 24 have been amended to address the objections set forth in the Office Action. Therefore, please replace original figures 1, 5, 6, 14, 15, 19, 22, 23, and 24 with attached amended figures each of which are properly labeled as "Replacement Sheet".

REMARKS

The Office Action dated October 10, 2008 has been received and carefully noted. The above amendments to the drawings, the specification and claims, the following remarks, are submitted as a full and complete response thereto.

The figures have been amended to overcome the objection set forth in the Office Action. The Specification has been amended to conform with the amendments made to the figures submitted with this Response. Claims 12, 14, 25, 27, 38, and 40 have been amended to more particularly point out and distinctly claim the subject matter of the present invention. No new matter has been added. Accordingly, claims 1-44 are submitted for consideration in the application, of which claims 1, 4, 8, 11-15, 19, and 32 are independent claims. Applicants respectfully request reconsideration and timely withdrawal of the pending objections to the drawings and rejections to the claims for the reasons discussed below.

The Office Action objected to the drawings for the following reasons:

1. The lead line of reference numeral 22, in Figure 1, failed to lead to the inner member.
2. Figure 24 should be labeled as "prior art".
3. Reference character T2 is used to indicated one offset distance in Figure 2 and a different offset distance in Figure 6 (as well as corresponding sections in the description).
4. The diameter of the ball 28 is indicated by reference character N in Figures 2, 4, and 22 and then by a different reference character Db in Figures 14, 15, and 19 (as well as the corresponding sections in the description).
5. Reference character R, in Figure 2, was used to indicate a center of curvature and reused to identify a radius in Figure 22 (as well as the corresponding sections in the description).

6. Reference numeral 10, in Figure 20, was used to identify features of the invention, but then reused to in Figure 23 to identify different features in Figure 23.

Applicants have amended the Figures 1, 5, 6, 14, 15, 19, 22, 23, and 24 to overcome the objections to the drawings. As such, Applicants respectfully request that the objection to the drawings be withdrawn.

Claims 1 and 8 were rejected under 35 U.S.C. § 102(b) as being anticipated by Aucktor (U.S. Patent No. 3,706,323). More particularly, the Office Action asserted that Aucktor discloses all of the features recited in claims 1 and 8. Applicants respectfully traverse this rejection as follows.

Claim 1, upon which claims 2 and 3 are dependent, recites a constant-velocity joint. The constant-velocity joint includes an outer member connected to one of two shafts which are angularly movable relative to each other and having an inner circumferential surface having a plurality of first guide grooves extending in an axial direction thereof. The outer member has an open end. The constant-velocity joint includes an inner ring connected to the other of the two shafts and having as many second guide grooves as the number of the first guide grooves. The second guide grooves extend in an axial direction thereof. The constant-velocity joint includes a plurality of balls rollingly disposed between the first guide grooves and the second guide grooves, for transmitting a torque between the outer member and the inner ring. The constant-velocity joint includes a retainer having retaining windows retaining the balls, respectively,

therein. Each of the first guide grooves has a transverse cross section extending perpendicularly to the axial direction and having a single arcuate shape, each of the first guide grooves being held in contact with a corresponding one of the balls at a single point. Each of the second guide grooves has a transverse cross section extending perpendicularly to the axial direction and having elliptically arcuate shape, each of the second guide grooves being held in contact with a corresponding one of the balls at two points.

Claim 8, upon which claims 9 and 10 are dependent, recites a constant-velocity joint. The constant-velocity joint includes an outer member connected to one of two shafts which are angularly movable relative to each other and having an inner circumferential surface having a plurality of first guide grooves extending in an axial direction thereof. The outer member has an open end. The constant-velocity joint includes an inner ring connected to the other of the two shafts and having as many second guide grooves as the number of the first guide grooves. The second guide grooves extending in an axial direction thereof. The constant-velocity joint includes six balls rollingly disposed between the first guide grooves and the second guide grooves, for transmitting a torque between the outer member and the inner ring;. The constant-velocity joint includes a retainer having retaining windows retaining the balls, respectively, therein. The first guide grooves have a pitch circle diameter represented as an outer PCD, the second guide grooves have a pitch circle diameter represented as an

inner PCD, and a PCD clearance represented by a difference between the outer PCD and the inner PCD (the outer PCD - the inner PCD) is set in a range from 0 to 100 μm .

By at least the aforementioned features of claim 1, for example, each of the first guide grooves are held in contact with the outer surface of the ball at a single point. As a result, when a load is actually applied to transmit rotational torque, the outer surface of the ball and each of the first guide grooves are held in surface-to-surface contact, rather than point-to-point contact, with each other. Moreover, each of the second guide grooves are held in contact with the outer surface of the ball at two points. As a result, when a load is actually applied to transmit a rotational torque, the outer surface of the ball and each of the second guide grooves are held in surface-to-surface contact, rather than point-to-point contact, with each other.

As will be discussed below, Applicants respectfully submit that Aucktor does not disclose, either expressly or inherently, all of the elements of claims 1 and 8, and, therefore fails to provide the features and advantages discussed above.

Aucktor generally discusses a pivot joint assembly. In particular, Aucktor discusses constant velocity universal joint of the type embodying inner and outer members each connected to a shaft, a cage between the members, and balls mounted in the cage with the balls being disposed in grooves formed in the inner and outer members.

However, Applicants respectfully submit Aucktor does not disclose, either expressly or inherently, "each of said first guide grooves being held in contact with a

corresponding one of the balls at a single point, and ... each of said second guide grooves being held in contact with a corresponding one of the balls at two points”, as recited in claim 1. Rather, Figure 2 of Aucktor, which was relied upon by the Office Action, illustrates a coaction of a ball 10 with a groove 7 of the inner member 3 and a groove 8 of the outer member 4 (see Aucktor, column 2, lines 52-54). The ball 10 will have contact with grooves at points a_1, i_1 or points a_2, i_2 (see Aucktor, column 2, lines 56-57). In other words, Figure 2 of Aucktor illustrates that the ball will have contact with the upper groove at a single point and lower groove at a single point.

Therefore, instead of “each of said *first guide grooves* being held *in contact with a corresponding one of the balls at a single point*, and ... each of said *second guide grooves* being held *in contact with a corresponding one of the balls at two points*” (emphasis added), as recited in claim 1, Figure 2 of Aucktor illustrates that the ball is in contact at a single point with the upper and lower groove.

Furthermore, Figure 5 of Aucktor, which was relied upon by the Office Action, illustrates a coaction between a ball 10 and grooves 7 and 8 of a joint (see Aucktor, column 3, lines 30-32). The ball 10, as illustrated in Figure 5 of Aucktor, is in contact with a flank of the groove 7 at the point i and with the flank of groove 8 at the point a (see Aucktor, column 3, lines 34-36). Therefore, instead of “each of said first guide grooves being held in contact with a corresponding one of the balls at a single point, and ... each of said second guide grooves being held in contact with a corresponding one of

the balls at two points”, as recited in claim 1, Figure 5 of Aucktor illustrates that the ball will contact each of the grooves at a single point.

In light of the above, Applicants respectfully submit that Aucktor does not disclose, either expressly or inherently, at least the aforementioned features of claim 1. Accordingly, Applicants respectfully request that the rejection of claim 1 be withdrawn.

Regarding claim 8, nothing was found in Aucktor that remotely suggests “wherein said first guide grooves have a pitch circle diameter represented as an outer PCD, said second guide grooves have a pitch circle diameter represented as an inner PCD, and a PCD clearance represented by a difference between said outer PCD and said inner PCD (the outer PCD - the inner PCD) is set in a range from 0 to 100 μm ”, as recited in claim 8. In particular, nothing was cited in the Office Action asserting that Aucktor discloses the above-quoted feature of claim 8. As such, the Office Action failed to make a prima facie case for anticipation, as required by MPEP § 2131 (“[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference”). Therefore, Applicants respectfully requests that the rejection of claim 8 be withdrawn. Furthermore, in the event that another Action is issued, the next Action cannot be made final, because the issues discussed above regarding claim 8 will be presented for the first time on record.

Claim 8 was rejected under 35 U.S.C. § 102(b) as being anticipated by Miller et al. (Publication entitled “Rzeppa Universal Joints”, hereinafter “Miller”). In particular, the

Office Action asserted that Miller disclosed all of the elements recited in claim 8. However, Applicants respectfully traverse this rejection as follows.

Claim 8, upon which claims 9 and 10 are dependent, recites a constant-velocity joint. The constant-velocity joint includes an outer member connected to one of two shafts which are angularly movable relative to each other and having an inner circumferential surface having a plurality of first guide grooves extending in an axial direction thereof. The outer member has an open end. The constant-velocity joint includes an inner ring connected to the other of the two shafts and having as many second guide grooves as the number of the first guide grooves. The second guide grooves extend in an axial direction thereof. The constant-velocity joint includes six balls rollingly disposed between the first guide grooves and the second guide grooves, for transmitting a torque between the outer member and the inner ring;. The constant-velocity joint includes a retainer having retaining windows retaining the balls, respectively, therein. The first guide grooves have a pitch circle diameter represented as an outer PCD, the second guide grooves have a pitch circle diameter represented as an inner PCD, and a PCD clearance represented by a difference between the outer PCD and the inner PCD (the outer PCD - the inner PCD) is set in a range from 0 to 100 μm .

As will be discussed below, Applicants respectfully submit that Miller does not disclose, either expressly or inherently, all of the elements of claim 8, and, therefore, fails to provide the features and advantages discussed above.

Miller generally discusses a Rzeppa universal joint. In particular, Miller discusses that the Rzeppa universal joint transmits contact velocity at a relatively high joint angle when the bell type outer race construction is used (see Miller, page 145, Introduction, third paragraph). The Office Action asserted that Figure 10 of Miller discloses “said first guide grooves have a pitch circle diameter represented as an outer PCD, said second guide grooves have a pitch circle diameter represented as an inner PCD, and a PCD clearance represented by a difference between said outer PCD and said inner PCD (the outer PCD - the inner PCD) is set in a range from 0 to 100 μm ” as recited in claim 8. In particular, the Office Action asserted that Figure 10 illustrates a BCR (ball center radius) which indicates that there is no difference between the outer PCD and the inner PCD (i.e. “PCD clearance” is equal to zero”) (see Office Action, page 6, lines 1-4).

However, Applicants respectfully submit that the assertion made by the Office Action is incorrect for at least the following reasons. Figure 8a of the instant application illustrates that “[the] first guide grooves have a pitch circle diameter represented as an outer PCD” (claim 8, lines 14-15), while Figure 8b of the instant application illustrates that “[the] second guide grooves have a pitch circle diameter represented as an inner PCD” (claim 8, lines 15-16). As a result, Figures 8a and 8b illustrate that the “difference between said outer PCD and said inner PCD ... is set in a range from 0 to 100 μm ” (claim 8, lines 17-18).

Applicants respectfully submit that Miller does not disclose, either expressly or inherently, any type of pitch circle diameter (PCD). Rather, Figure 10 of Miller, which was relied upon by the Office Action, illustrates how the axially offset ball groove generating points A and B, which are equally spaced from the joint center, produce the divergence or funnel angle (see Miller, page 145, column 1, second paragraph). As such, it is readily apparent that Figure 10 of Miller fails to remotely suggest that the “difference between said outer PCD and said inner PCD ... is set in a range from 0 to 100 μm ” (claim 8, lines 17-18).

Accordingly, Applicants respectfully request that the rejection of claim 8 should be withdrawn for at least the reasons stated above.

Claims 8 and 12 were rejected under 35 U.S.C. § 102(b) as being anticipated by Thomas (U.S. Patent Publication No. 2003/0054893). In particular, the Office Action asserted that Thomas discloses all of the elements of claims 8 and 12. However, Applicants respectfully traverse this rejection as follows.

Claim 8, upon which claims 9 and 10 are dependent, recites a constant-velocity joint. The constant-velocity joint includes an outer member connected to one of two shafts which are angularly movable relative to each other and having an inner circumferential surface having a plurality of first guide grooves extending in an axial direction thereof. The outer member has an open end. The constant-velocity joint includes an inner ring connected to the other of the two shafts and having as many second

guide grooves as the number of the first guide grooves. The second guide grooves extend in an axial direction thereof. The constant-velocity joint includes six balls rollingly disposed between the first guide grooves and the second guide grooves, for transmitting a torque between the outer member and the inner ring;. The constant-velocity joint includes a retainer having retaining windows retaining the balls, respectively, therein. The first guide grooves have a pitch circle diameter represented as an outer PCD, the second guide grooves have a pitch circle diameter represented as an inner PCD, and a PCD clearance represented by a difference between the outer PCD and the inner PCD (the outer PCD - the inner PCD) is set in a range from 0 to 100 μm .

Claim 12 recites a constant-velocity joint. The constant-velocity joint includes an outer member connected to one of two shafts which are angularly movable relative to each other and having an inside-diameter surface having a plurality of first guide grooves extending in an axial direction thereof. The outer member has an open end. The constant-velocity joint includes an inner ring connected to the other of the two shafts and having as many second guide grooves as the number of the first guide grooves. The second guide grooves extend in an axial direction thereof. The constant-velocity joint includes six balls rollingly disposed between the first guide grooves and the second guide grooves, for transmitting a torque between the outer member and the inner ring. The constant-velocity joint includes a retainer having retaining windows retaining the balls, respectively, therein. The first guide grooves have a pitch circle diameter represented as

an outer PCD, the second guide grooves have a pitch circle diameter represented as an inner PCD, and a ratio (N/Dp) of a diameter (N) of the balls to a dimension (Dp) of an outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other, is set in a range of $0.2 \leq (N/Dp) \leq 0.5$.

As will be discussed below, Applicants respectfully submit that Miller does not disclose, either expressly or inherently, all of the elements of claim 8, and, therefore, fails to provide the features and advantages discussed above.

Thomas generally discusses a constant velocity joint. More particularly, Figure 1 of Thomas illustrates a Rzeppa style constant velocity joint 10 with an outer race 12 connected to a shaft 14 and having six ball tracks 16 on its inner face 18 (see paragraph [0024]). The Office Action asserted that paragraph [0031] of Thomas discloses wherein said first guide grooves have a pitch circle diameter represented as an outer PCD, said second guide grooves have a pitch circle diameter as an inner PCD, and ratio (b/BCR) of a diameter (b) of said balls to a dimension (BCR) of an outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other (see Office Action, page 6, item 8, lines 12-16).

However, Applicants respectfully submit that the Office Action is incorrect in asserting that paragraph [0031] of Thomas discloses the feature “wherein said first guide grooves have a pitch circle diameter represented as an outer PCD, said second guide grooves have a pitch circle diameter represented as an inner PCD, and a ratio (N/Dp) of a

diameter (N) of said balls to a dimension (Dp) of an outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other, is set in a range of $0.2 \leq (N/Dp) \leq 0.5$ ”, as recited in claim 12. Rather, paragraph [0031] of Thomas discusses that Figure 3 illustrates a construction that provides larger balls to be more compactly spaced, since the ratio of the Ball Center Diameter (BCD)/ball diameter (b) is less than 3.3. ⁵

However, because “a ratio (N/Dp) of a diameter (N) of said balls to a dimension (Dp) of an outer/inner PCD ... is set in a range of $0.2 \leq (N/Dp) \leq 0.5$ ” (claim 12), the various dimensions of the constant-velocity joint 10 can be established for a small joint size while maintaining various characteristics, i.e. mechanical strength, durability, load capacity, etc., at desired levels. As such, Applicants respectfully submit that it is readily apparent that Thomas does not disclose, either expressly or inherently, the features of claim 1, as quoted above, because the ratio of the Ball Center Diameter (BCD)/ball diameter described in Thomas is not the same as “a ratio (N/Dp) of a diameter (N) of said balls to a dimension (Dp) of an outer/inner PCD [pitch circle diameter]” as recited in claim 12.

Accordingly, Applicants respectfully request that the rejection of claim 12 should be withdrawn for at least the reasons stated above.

Regarding claim 8, Applicants respectfully submit that nothing was found or cited in Thomas that discloses, either or implicitly, at least “said first guide grooves have a pitch circle diameter represented as an outer PCD, said second guide grooves have a pitch

circle diameter represented as an inner PCD, and a PCD clearance represented by a difference between said outer PCD and said inner PCD (the outer PCD - the inner PCD) is set in a range from 0 to 100 μm ".

Moreover, the Office Action does not explain **why** limitation "a PCD clearance represented by a difference between said outer PCD and said inner PCD ... is set in a range from 0 to 100 μm ", in claim 8, would be haven disclosed by Thomas. In fact, Thomas is completely silent as to said outer PCD and said inner PCD.

MPEP § 2143 states, in part

[t]he key to supporting any rejection under 35 U.S.C. 103 is the **clear articulation** of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit

(emphasis added). Because the rejection lacks a clear articulation of the reasons why these features would allegedly have been obvious, the rejection cannot be supported per the requirements set forth by the United States Supreme Court. Because the Office Action failed to establish a *prima facie* case of obviousness, any rejection in a subsequent Office Action providing adequate reasoning would be presented for the first time on the record and as such, the next Action **cannot** be made final.

Therefore, in light of the above, Applicants respectfully submit that the rejection of claim 8 is improper and, therefore, request that the rejection be withdrawn.

Claims 9-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Miller. More particularly, the Office Action asserted that Miller discloses all of the

elements in claims 9-18 except for the particular range values recited in the claims. The Office Action further asserted that it would have been obvious to one of ordinary skill in the art to have the constant velocity joint include all the particular range values since the general conditions of the claims are disclosed in Miller. However, Applicants respectfully traverse this rejection as follows.

Claim 11 recites a constant-velocity joint. The constant-velocity joint includes an outer member connected to one of two shafts which are angularly movable relative to each other and having an inside-diameter surface having a plurality of first guide grooves extending in an axial direction thereof. The outer member having an open end. The constant-velocity joint includes an inner ring connected to the other of the two shafts and having as many second guide grooves as the number of the first guide grooves. The second guide grooves extending in an axial direction thereof. The constant-velocity joint includes six balls rollingly disposed between the first guide grooves and the second guide grooves, for transmitting a torque between the outer member and the inner ring. The constant-velocity joint includes a retainer having retaining windows retaining the balls, respectively, therein. The first guide grooves have a pitch circle diameter represented as an outer PCD, the second guide grooves have a pitch circle diameter represented as an inner PCD, and a ratio (D_p/D) of a dimension (D_p) of an outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other, to a diameter (D) of an inner-ring serrated-region inside-diameter surface on an inner wall of the inner

ring is set in a range of $1.9 \leq (D_p/D) \leq 2.2$.

Claim 12 recites a constant-velocity joint. The constant-velocity joint includes an outer member connected to one of two shafts which are angularly movable relative to each other and having an inside-diameter surface having a plurality of first guide grooves extending in an axial direction thereof. The outer member has an open end. The constant-velocity joint includes an inner ring connected to the other of the two shafts and having as many second guide grooves as the number of the first guide grooves. The second guide grooves extending in an axial direction thereof. The constant-velocity joint includes six balls rollingly disposed between the first guide grooves and the second guide grooves, for transmitting a torque between the outer member and the inner ring. The constant-velocity joint includes a retainer having retaining windows retaining the balls, respectively, therein. The first guide grooves have a pitch circle diameter represented as an outer PCD, the second guide grooves have a pitch circle diameter represented as an inner PCD, and a ratio (N/D_p) of a diameter (N) of the balls to a dimension (D_p) of an outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other, is set in a range of $0.2 \leq (N/D_p) \leq 0.5$.

Claim 13 recites a constant-velocity joint. The constant-velocity joint includes an outer member connected to one of two shafts which are angularly movable relative to each other and having an inside-diameter surface having a plurality of first guide grooves extending in an axial direction thereof. The outer member has an open end. The

constant-velocity joint includes an inner ring connected to the other of the two shafts and having as many second guide grooves as the number of the first guide grooves. The second guide grooves extend in an axial direction thereof. The constant-velocity joint includes six balls rollingly disposed between the first guide grooves and the second guide grooves, for transmitting a torque between the outer member and the inner ring. The constant-velocity joint includes a retainer having retaining windows retaining the balls, respectively, therein. The first guide grooves have a pitch circle diameter represented as an outer PCD, the second guide grooves have a pitch circle diameter represented as an inner PCD, and a ratio (D_o/D_p) of an outside diameter (D_o) of the outer member to a dimension (D_p) of an outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other, is set in a range of $1.4 \leq (D_o/D_p) \leq 1.8$.

Claim 14 recites a constant-velocity joint. The constant-velocity joint includes an outer member connected to one of two shafts which are angularly movable relative to each other and having an inside-diameter surface having a plurality of first guide grooves extending in an axial direction thereof. The outer member has an open end. The constant-velocity joint includes an inner ring connected to the other of the two shafts and having as many second guide grooves as the number of the first guide grooves. The second guide grooves extend in an axial direction thereof. The constant-velocity joint includes six balls rollingly disposed between the first guide grooves and the second guide grooves, for transmitting a torque between the outer member and the inner ring. The

constant-velocity joint includes a retainer having retaining windows retaining the balls, respectively, therein. The first guide grooves have a pitch circle diameter represented as an outer PCD, the second guide grooves have a pitch circle diameter represented as an inner PCD, and a ratio (D_p/D) of a dimension (D_p) of an outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other, to a diameter (D) of an inner-ring serrated-region inside-diameter surface on an inner wall of the inner ring is set in a range of $1.9 \leq (D_p/D) \leq 2.2$. A ratio (N/D_p) of a diameter (N) of the balls to the dimension (D_p) of the outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other, is set in a range of $0.2 \leq (N/D_p) \leq 0.5$. A ratio (D_o/D_p) of an outside diameter (D_o) of the outer member to the dimension (D_p) of the outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other, is set in a range of $1.4 \leq (D_o/D_p) \leq 1.8$.

Claim 15, upon which claims 16-18 are dependent, recites a constant-velocity joint. The constant-velocity joint includes an outer member connected to one of two shafts which are angularly movable relative to each other and having an inner circumferential surface having a plurality of first guide grooves extending in an axial direction thereof. The outer member has an open end. The constant-velocity joint includes an inner ring connected to the other of the two shafts and having an outer circumferential surface having as many second guide grooves as the number of the first guide grooves. The second guide grooves extend in an axial direction thereof. The

constant-velocity joint includes a plurality of balls rollingly disposed between the first guide grooves and the second guide grooves, for transmitting a torque between the outer member and the inner ring. The constant-velocity joint includes a retainer having retaining windows retaining the balls, respectively, therein. Each of the retaining windows has an opening length (WL) extending in a circumferential direction of the retainer, and a ratio (WL/N) of the opening length (WL) to a diameter (N) of the balls is set in a range of $1.30 \leq (WL/N) \leq 1.42$.

As will be discussed below, Applicants respectfully submit that Miller does not disclose, either expressly or implicitly, all of the elements of claims 9-18, and, therefore, fails to provide the features and advantages discussed above.

As previously discussed, Miller generally discusses that the Rzeppa universal joint transmits contact velocity at a relatively high joint angle when the bell type outer race construction is used (see Miller, page 145, Introduction, third paragraph). Also, as discussed above, Miller does not disclose, either expressly or implicitly, “wherein said first guide grooves have a pitch circle diameter represented as an outer PCD, said second guide grooves have a pitch circle diameter represented as an inner PCD, and a PCD clearance represented by a difference between said outer PCD and said inner PCD (the outer PCD - the inner PCD) is set in a range from 0 to 100 μm ”, as recited in independent claim 8.

Therefore, Applicants respectfully request that the rejection of claims 9 and 10, which are dependent upon claim 8, be withdrawn, because Miller does not disclose all of the limitations of base claim 8, and, therefore, fails to disclose the particular ranges values as admitted by the Office Action.

Regarding claims 11-18, Applicants respectfully submits that Miller does not disclose, either expressly or implicitly, all of the features recited in claims 11-18 for at least the following reasons.

Claim 11, in part, recites “said first guide grooves have a pitch circle diameter represented as an outer PCD, said second guide grooves have a pitch circle diameter represented as an inner PCD, and a ratio (D_p/D) of a dimension (D_p) of an outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other, to a diameter (D) of an inner-ring serrated-region inside-diameter surface on an inner wall of said inner ring is set in a range of $1.9 \leq (D_p/D) \leq 2.2$ ”.

Claim 12, in part, recites “said first guide grooves have a pitch circle diameter represented as an outer PCD, said second guide grooves have a pitch circle diameter represented as an inner PCD, and a ratio (N/D_p) of a diameter (N) of said balls to a dimension (D_p) of an outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other, is set in a range of $0.2 \leq (N/D_p) \leq 0.5$ ”.

Claim 13, in part, recites “said first guide grooves have a pitch circle diameter represented as an outer PCD, said second guide grooves have a pitch circle diameter

represented as an inner PCD, and a ratio (Do/Dp) of an outside diameter (Do) of said outer member to a dimension (Dp) of an outer/inner PCD, which represents the outer PCD and the inner PCD that are equal to each other, is set in a range of $1.4 \leq (Do/Dp) \leq 1.8$ ". Claim 14 recites features similar to those recited in claim 13.

Claim 15, in part, recites "wherein each of said retaining windows has an opening length (WL) extending in a circumferential direction of said retainer, and a ratio (WL/N) of said opening length (WL) to a diameter (N) of said balls is set in a range of $1.30 \leq (WL/N) \leq 1.42$ ". Claim 16-18 are dependent upon independent claim 15.

Applicants respectfully submit that nothing was cited or found in Miller that disclose, either expressly or implicitly, the features of claims 11-18. Moreover, the Office Action failed to establish a *prima facie* case for obviousness with respect to the rejection of claims 11-18. According to MPEP § 2143, "[t]he key to supporting any rejection under 35 U.S.C. 103 is the **clear articulation** of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit" (emphasis added). Because the rejection lacks a clear articulation of the reasons why and how these features would allegedly have been obvious, the rejection cannot be supported per the requirements set forth by the United States Supreme Court. Because the Office Action failed to establish a *prima facie* case of obviousness, any rejection in a subsequent Office

Action providing adequate reasoning would be presented for the first time on the record and as such, the next Action **cannot** be made final.

Therefore, in light of the above, Applicants respectfully request that the rejection of claims 11-18 are improper and, therefore, be withdrawn.

Regarding claim 19, Applicants respectfully that none of the references, whether considered alone or in combination, disclose, either expressly or implicitly, at least, “said first guide grooves have a pitch circle diameter represented as an outer PCD, said second guide grooves have a pitch circle diameter represented as an inner PCD, and a PCD clearance represented by a difference between said outer PCD and said inner PCD (the outer PCD - the inner PCD) is set in a range from 0 to 100 μm ”. Furthermore, because claim 19 recites features similar to those recited in claim 8, Applicants respectfully submits that the rejection of claim 19 be withdrawn for reasons similar to those discussed above with respect to claim 8.

Claims 2-7 and 9-44 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Aucktor for the same reasons as noted above. However, Applicants respectfully traverse this rejection as follows.

In particular, Applicants respectfully request that the rejection of claims 2-7 and 9-44 be withdrawn, because claims 2-7 and 9-44 recite features that have not been addressed by the Office Action. In particular, the Office Action failed to establish a prima facie case for obviousness in failing to address the features recited in claims 2-7

and 9-44. As previously discussed, MPEP § 2143 states that “[t]he key to supporting any rejection under 35 U.S.C. 103 is the **clear articulation** of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit” (emphasis added). Because the rejection lacks a clear articulation of the reasons why and how the features recited in claims 2-7 and 9-44 would allegedly have been obvious, the rejection cannot be supported per the requirements set forth by the United States Supreme Court. Because the Office Action failed to establish a *prima facie* case of obviousness, any rejection in a subsequent Office Action providing adequate reasoning would be presented for the first time on the record and as such, the next Action **cannot** be made final.

Therefore, in light of the above, Applicants respectfully request that that the rejection of claims 2-7 and 9-44 are improper and, therefore, be withdrawn.

Claims 9-11 and 13-18 were rejected under 35 U.S.C § 103(a) as being unpatentable over Thomas for the same reasons as noted above. However, Applicants respectfully traverse this rejection as follows.

Applicants respectfully request that the rejection of claims 9-11 and 13-18 be withdrawn, because claims 9-11 and 13-18 recite features that have not been addressed by the Office Action. In particular, Applicants respectfully submit that the Office Action failed to establish a *prima facie* case for obviousness in failing to address the features

recited in claims 9-11 and 13-18, as required by MPEP § 2143. As such, the next Action **cannot** be made final.

Therefore, in light of the above, Applicants respectfully request that the rejection of claims 9-11 and 13-18 are improper and, therefore, be withdrawn.

For at least the reasons discussed above, Applicants respectfully submit that none of the references, whether considered alone or in combination, disclose, either expressly or implicitly, all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unobvious. It is therefore respectfully requested that all of claim 1-44 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Replacement Sheets